

S/137/E1/000/006/047/092
A006/A101

AUTHOR: Pomichev, I.A.,

TITLE: Theoretical velocities of diagonal rolling

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 6, 1961, 36, abstract 6D292
("Tr. Ukr. n.-i. trubn. in-ta", 1959, no. 1, 5 - 16)

TEXT: Information is given on methods to determine the velocity for any case of diagonal rolling. Of particular significance are the components of the vector of total velocity along the direction of the symmetry axis of the mill and along the direction of the blank rotation which is perpendicular to the former. The component of the total velocity vector along the symmetry axis of the mill, determining the motion speed of the contact spot of the blank and the rolls in the direction of the blank outlet from the rolls, is the feed rate; and the component of the total velocity vector directed perpendicular to the symmetry axis of the mill and determining the velocity of motion in the direction of the blank rotation, is the rotation speed. ✓

Yu. Manegin

[Abstracter's note: Complete translation]

Card 1/1

S/137/61/000/007/046/072
A060/A101

AUTHOR: Fomichev, I. A.

TITLE: Action of forces and gripping conditions in oblique rolling mills

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 37, abstract 7D297
("Tr. Ukr. n.-i. trubn. in-ta". 1959, no. 2, 33-50) .

TEXT: From the general case of oblique rolling, formulae are derived for determining the gripping conditions in special cases: for rolling with mushroom-shaped, barrel-shaped, and disk-type rolls. From calculations according to these formulae follows that the gripping conditions deteriorate considerably as the angle of roll inclination in the vertical plane decreases. The coefficient of friction required by the gripping conditions falls sharply as the angle of inclination of the roll axis in the horizontal plane increases. Other conditions being equal, the easiest primary gripping conditions hold for disk-type mills, and the least favorable - for mills with barrel-shaped rolls. The greater the mandrel axial force, the greater the coefficient of friction required by the conditions for equilibrium of forces, and the less favorable the secondary

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Action of forces and gripping conditions ...

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A060/A101

gripping conditions, which correspond to the position at which the zone of rolling without mandrel is filled with metal. The specific pressure and axial force on the mandrel face increase with decreasing reduction of the blank.

Ya. Gallyay

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/007/048/072
AO60/A101

AUTHORS: Fomichev, I. A.; Ostrenko, V. Ya.

TITLE: Pressure of metal on rolls and mandrel during piercing of blanks in mills with barrel-shaped, mushroom-shaped, and disk-type rolls

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 37, abstract 7D299 ("Tr. Ukr. n.-i. trubn. in-ta", 1959, no. 2, 51-69)

TEXT: Formulae are derived for the determination of the pressure of metal on the rolls and the axial pressure on mandrels. Experimental studies of the metal pressure on rolls and mandrels were carried out in the course of piercing blanks on mills "140" of ЮТЗ (YuTZ) and on the piercing mill with mushroom-shaped rolls of ЧТПЗ (ChTPZ). Data were obtained indicating the dependence of metal pressure on rolls upon the reduction, temperature, grade of steel, and the speed of the rolls. The pressure is lowest in the piercing mill with mushroom-shaped rolls. The values of mean specific pressure are approximately equal for all mills. The ratio of axial pressure (Q) to metal pressure on the rolls (P) in a mill with barrel-shaped rolls is equal to 0.2 - 0.35, in a mill with mushroom-shaped rolls - 0.35 - 0.40, in a mill with disk-type rolls - 0.45 - 0.5. The

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Pressure of metal on rolls and mandrel ...

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experimental data obtained and the analysis of the stress pattern in the strain seat yield the conclusion that the formation of the primary cavity in piercing of blanks on mills with mushroom-shaped and disk rolls is difficult. This fact is very important in the piercing of high-alloy steels and alloys. Thus, piercing mills with mushroom-shaped rolls in which the piercing pressure is lowest and the Q/P ratio is sufficiently high, possess an advantage as compared with other types of mills.

Yu. Manegin

[Abstracter's note: Complete translation]

Card 2/2

S/137/61/000/007/045/072
A060/A101

AUTHORS: Fomichev, I. A.; Kirichenko, A. N.

TITLE: Gripping conditions for longitudinal pipe rolling in passes

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 7, 1961, 37, abstract 7D296
("Tr. Ukr. n.-i. trubn. in-ta", 1959, no. 2, 103-113)

TEXT: It is demonstrated that the conditions for gripping under longitudinal rolling of pipes in passes is expressed by the equation $f > \tan \alpha \times \cos \theta$ where f is the coefficient of friction, α is the gripping angle in the section of initial tangency, θ is the angle between the direction of the total pressure, P and its projection onto the vertical plane perpendicular to the roll axis. The values of the angles α and θ vary along the pass width. Expressions for them are given for cases of rolling an oval blank in an oval pass, rhombic blank in rhombic pass, oval blank in rectangular pass, square blank in oval pass, oval blank in rhombic pass, and round blank in square gabled pass. The conditions for gripping of blanks in the presence of a pressing-in force are considered. An example of calculating the gripping conditions for an oval blank in rhombic groove is given.

Yu. Manegin

[Abstracter's note: Complete translation]
Card 1/1

Present state of theory and direction ...

S/137/61/000/007/050/072
A060/A101

Experiments are reported regarding tests of molding with conduits of pipes 30 x 0.3 and 152 x 3.25 mm. Bibliography contains 9 names.

V. Tsiurul'nikov

[Abstracter's note: Complete translation]

Card 2/2

POMICHEV, I. A.

(40)

PHASE I BOOK EXPLOITATION

SOV/6044

• Rokotyan, Ye. S., Doctor of Technical Sciences, Ed.

Prokatnoye proizvodstvo; spravochnik (Rolling Industry; Handbook)
v. 2. Moscow, Metallurgizdat, 1962. 685 p. 8500 copies
printed.

Authors: P. A. Aleksandrov, Doctor of Technical Sciences;
V. P. Anisiforov, Candidate of Technical Sciences; V. I. Bayrakov,
Candidate of Technical Sciences; N. V. Barbarich, Candidate
of Technical Sciences; B. P. Bakhtinov, Candidate of Technical
Sciences [deceased]; B. A. Bryukhanenko, Candidate of Economic
Sciences; M. V. Vasil'chikov, Candidate of Technical Sciences;
A. I. Vitkin, Doctor of Technical Sciences; S. P. Granovskiy,
Candidate of Technical Sciences; P. I. Grudev, Candidate of
Technical Sciences; I. V. Gunin, Engineer; M. Ya. Dzugutov,
Candidate of Technical Sciences; V. G. Drozd, Candidate of
Technical Sciences; N. P. Yermolayev, Engineer; G. N. Katsnel'son,
Candidate of Technical Sciences; M. V. Kovynev, Engineer;
M. Ye. Kugayenko, Engineer; N. V. Litovchenko, Candidate of
Technical Sciences; Yu. M. Matveyev, Candidate of Technical

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SOV/6044

Rolling Industry; Handbook

Sciences; V. I. Molephko, Candidate of Technical Sciences;
N. V. Meldov, Engineer; A. K. Ninburg, Candidate of Tech-
nical Sciences; V. D. Nosov, Engineer; B. I. Panchenko,
Engineer; O. A. Plyatskovskiy, Candidate of Technical
Sciences; I. S. Pobedin, Candidate of Technical Sciences;
I. A. Priymak, Professor, Doctor of Technical Sciences
[deceased]; A. A. Protasov, Engineer; M. M. Saf'yan,
Candidate of Technical Sciences; N. M. Fedosov, Professor;
S. N. Filipov, Engineer [deceased]; I. N. Filippov, Can-
didate of Technical Sciences; I. A. Pomichev, Doctor of
Technical Sciences; M. Yu. Shifrin, Candidate of Technical
Sciences; E. R. Shor, Candidate of Technical Sciences;
M. M. Shternov, Candidate of Technical Sciences; M. V.
Shuralev, Engineer; I. A. Yulhvet, Candidate of Technical
Sciences; Eds. of Publishing House: V. M. Gorobinchenko,
R. M. Golubchik, and V. A. Rymov; Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This handbook is intended for engineering personnel of
metallurgical and machine-building plants, scientific research
Card 2/14

Rolling Industry; Handbook

SOV/6044

institutes, and planning and design organizations. It may also be used by students at schools of higher education.

COVERAGES: Volume 2 of the handbook reviews problems connected with the preparation of metal for rolling, the quality and quality control of rolled products, and designs of roll passes in merchant mills. The following topics are discussed: processes of manufacturing semifinished and finished rolled products (the rolling of blooms, billets, shapes, beams, rails, strips, wire, plates, sheets, and the drawing of steel wire), hot-dipped tin plates, lacquered plates, floor plates, tubes made by different methods, and special types of rolled products. Problems of the organization of rolling operations are reviewed, and types of rolled products manufactured in the USSR are shown. No personalities are mentioned. There are no references.

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Rolling Industry; Handbook

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S/137/62/000/004/072/201
A052/A101

AUTHORS: Pomichev, I. A., Vatutin, P. I., Ostrenko, V. Ya., Mironov, Yu. M.

TITLE: The outlook for raising precision of hot-rolled pipes

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 33, abstract 40218
("Sb. nauchno-tekhn. tr. N.-i.in-ta metallurgii Chelyab. sovarkhoza",
no. 3, 1961, 104-107)

TEXT: Some results are presented of an investigation carried out on a number of pipe mills with the purpose of producing seamless pipes with a high D/S ratio. The tests confirmed the theoretical thesis on the effectiveness of producing finished pipes on skewed rolling mills rather than on automatic mills. A modernized schematic diagram of automatic mills and a layout of equipment of the new automatic mills being designed are given.

A. Leontyov

[Abstracter's note: Complete translation]

Card 1/1

S/137/62/000/003/093/191
A006/A101

AUTHORS: Fomichev, I.A.; Kirichenko, A.N.

TITLE: The speed of metal delivery from the rolls, the forward and backward zone during rolling in grooves

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 30, abstract 3D168 (V sb. "Proiz-vo trub", no. 4, Khar'kov, Metallurgizdat, 1961, 13 - 27)

TEXT: As a result of studies on kinematics of the groove rolling process, formulae were derived to determine the projections of the forward and backward flow zones, the average and rolling radii, the speed of metal delivery from the rolls, and an equation of the neutral line. All the theoretical conclusions of the study have been experimentally confirmed.

N. Yudina

[Abstracter's note: Complete translation]

Card 1/1

S/137/62/000/003/092/191
AC06/A101

AUTHORS: Fomichev, I.A., Devyatisil'nyy, V.I.

TITLE: A method of determining the forward-flow in pipe rolling on a pilger mill

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 3, 1962, 30, abstract 3D167
(V sb. "Proiz-vo trub", no. 4, Khar'kov, Metallurgizdat, 1961, 50 - 62)

TEXT: The magnitude of the coefficient of forward-flow during the rolling of a pipe blank with the front cone of pilger mill rolls (striking block) is more expediently determined by a method which is based on measuring the speed of roll-back of the blank by the rolls and their angular velocity, than by the conventional method of prick-punching the rolls. The magnitude of the coefficient of forward-flow with the polishing section can be determined both by measuring the speed of roll-back of the blank by the rolls and their angular velocity, and by means of prick-punching the rolls. To calculate approximately the magnitude of the coefficient of forward-flow during rolling of the blank with the front cone of the rolls, a method can be recommended which utilizes the results of measuring the wall thickness of the pilger mill head.

S/123/62/000/013/017/021
A004/A101

AUTHORS: Pomichev, I.A., Shoshin, V. A.

TITLE: Longitudinal deformations of the strip in continuous bending into pipe blanks

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 13, 1962, 25-26, abstract 13V99. (In collection: "Proiz-vo trub". No. 6, Khar'kov, Metallurgizdat, 1962, 102-110)

TEXT: The authors report on investigations carried out to study the profiling process of strip 95 mm wide with a thickness $h = 1, 1.25, 1.5$ and 1.8 mm into pipes 30 mm in diameter on a multiple roller-pair profiling and bending machine, to elucidate the mechanism of wave formation on the edges. The longitudinal elongations of the edges were measured with wire tensometers and by the marking method. It was found that, in front of the stand, the edge stretches evenly at the start (beginning with a distance up to the stand axis $l = 270 - 100$ mm), then abruptly ($l = 150-100$ mm), reaching its maximum at $l = 80-40$ mm, which amounts to 0.3-0.8% of the relative deformation depending on h and the number of the stand, after which an abrupt contraction takes place, which ends behind the stand ($l = 20-40$ mm).

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Longitudinal deformations of the...

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The load and residual elongations grow with an increase of h . The longitudinal deformations over the width of the strip were measured with tensometers (in the middle and at a distance of 26 and 42.5 mm from the center). A graph has been plotted showing the changes in longitudinal deformations in various points over the strip width in sections in front of the stand $l = 240$ and behind the stand $l = 120$ mm. Stress vectors have been obtained for the strip cross section shaped into an arc of 60.3 mm radius for $l = 20$ mm and, using the conditions of the tension diagram, the stress distribution diagram was plotted. Tensile stresses are acting on the middle of the strip and on the edges, while the intermediate points (between the middle and the edges) are affected by compression stresses. The origination of waves is explained by the interaction of the previously residually elongated edges with the middle part of the strip, when the strip is passing the zone of contraction of the edges which causes the strip to lose its resistance to compression. To increase the resistance of the edges the authors recommend: reducing the edge bending radius, using additional supports for the edges (rollers and wires) increasing the roller diameter and improving the contact of the strip with the gages over its whole width. There are 6 figures and 4 references.

[Abstracter's note: Complete translation]

Yu. Semenenko

Card 2/2

FOMICHEV, Ignat Antonovich; NIKOLAYEVSKIY, Yu.I., otv. red.; KAMINSKIY,
L.N., red. izd-va; KARASEV, A.I., tekhn. red.

[Diagonal rolling]Kosaia prokatka. Khar'kov, Metallurgizdat,
1963. 261 p. (MIRA 16:2)
(Rolling (Metalwork)) (Pipe mills)

FOMICHEV, I.A.; KIRICHENKO, A.N.

Conditions for carrying out the rolling process in grooves.

Izv. vys. ucheb. zav.; Chern. met. 6 no.12:62-73 '63.

(MIRA 17:1)

1. Dnepropetrovskiy khimiko-tekhnologicheskyy institut i
Ukrainskiy nauchno-issledovatel'skiy trubnyy institut.

FOMICHEV, I.A., doktor tekhn. nauk; TROFIMOVICH, A.N., inzh.; PRIKHOD'KO,
O.G., inzh.

Using molded wooden plastics in friction units of rolling mills.
Vest. mashinostr. 43 no.10:40-43 O '63. (MIRA 16:11)

FOMICHEV, I.A., doktor tekhn. nauk: DOKYATSIIL'NYI, V.I., inzh.

Device for determining the actual amount of feed in the pilgrin
rolling of pipe. Proizv. trub no. 12:38-40 '64.

(MIRA 17:11)

FOMICHEV, I.A.; TROFIMOVICH, A.I.; SOLOV'YEV, Yu.F.

Testing laminated and pressed wood plastics and their use in rolling
mills. Stal' 24 no.7:668-670 J1 '64. (MIRA 18.1)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

FOMICHEV, I.A.; TROFIMOVICH, A.N.

Methodology for determining the antifriction characteristics
of nonmetallic materials on a three-position friction machine.
Zav.lab. 30 no.3:351-353 '64. (MIRA 17:4)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

FOMICHEV, I.A.; KIRICHENKO, A.N.

Conditions for carrying out the pipe rolling process on automatic mills. Izv.vys.ucheb.zav.; Chern. met. 8 no.4:135-141 '65.
(MIRA 18:4)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut i Dnepropetrovskiy khimiko-tekhnologicheskii institut.

FOMICHEV, I.A., doktor tekhn. nauk; TROFIMOVICH, A.I., inzh.; KRIMECHANSKAYA,
~~R.L.~~; inzh.; PRIKHOD'KO, O.G., inzh.

Effect of fillers on physiocomechanical and antifrictional
properties of wood plastics. Izv. vys. ucheb. zav.; mashinostr.
no.12:49-53 '64. (MIRA 18:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

FOMACHEV, A.A.; KIRICHENKO, A.N.

Analytic determination of the pipe rolling moment on automatic
mills. Izv. vys. ucheb. zav.; chern. met. 8 no.10:74-79 '65.
(MIRA 18:9)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut :
Dnepropetrovskiy khimiko-tekhnologicheskii institut.

L 20783-66 EWT(m)/EWP(v)/EWP(j)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l)/ETC(m)-6 IJP(c)

ACC NR: AP6004646

RM/WW/JD/WB

SOURCE CODE: UR/0383/65/000/005/0045/0047

AUTHOR: Fomichev, I. A.; Petrunin, G. P.; Furasov, M. D.; D'yachenko, R. I. 58

ORG: none 56

TITLE: Machine for depositing polymeric protective coatings onto steel tubes per-
forming in aggressive media 15 44 55 B

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 5, 1965, 45-47

TOPIC TAGS: protective coating, polymer, metal tube, corrosion/MPTSh 102/42 tube coating machine

ABSTRACT: The replacement of expensive and scarce tubes of stainless steels and non-ferrous and precious metals with tubes of ferrous metals having protective coatings of polymeric materials resistant to aggressive media is currently being extensively investigated. In this connection, the authors describe the newly designed MPTSh 102/42 machine for coating with polymeric materials the internal surface of seamless steel by the extrusion method (Fig. 1). The operating principle of the machine is such that the screw conveyor extrudes the paste of polymeric material into the barrel of a rotating tube, or more exactly into the annular cavity between the mandrel and the tube, thus coating the internal surface of the tube with a uniform layer of the paste. Automatic pickups trigger and halt the feeding of the paste and the removal of the coated tube and mounting of a new tube onto the conveyor table. Laboratory

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UDC: 621.774:621.793:678.5 2

L 20783-66

ACC NR: AP6004646

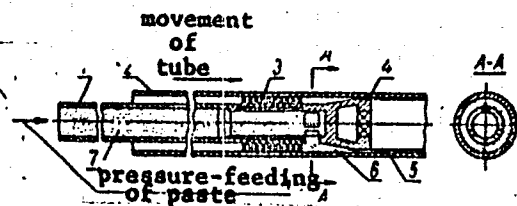


Fig. 1. Diagram of the deposition of protective coating

1 - hollow rod; 2 - tube being coated; 3 - compacting disks; 4 - mandrel;
5 - coating; 6 - cavity for paste; 7 - paste in hollow rod

Card 2/4

L 20783-66

ACC NR: AP6004646

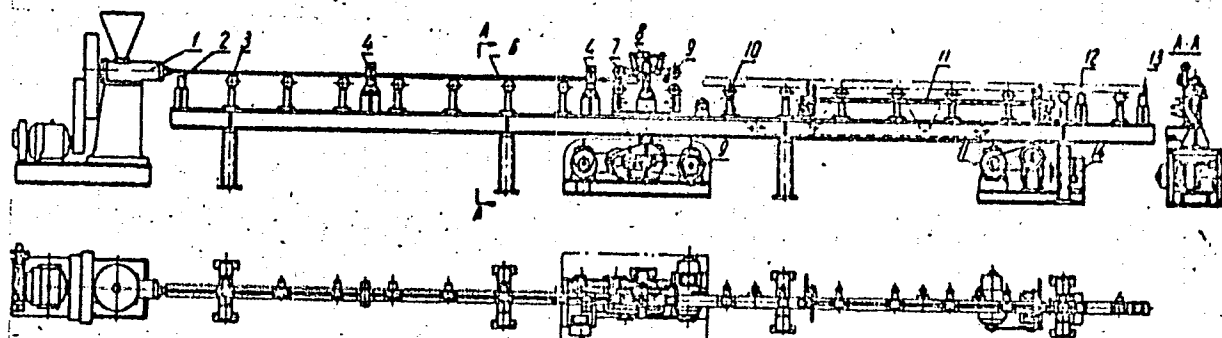


Fig. 2. General view of the MPTSh/42 machine:

- 1 - screw extruder; 2 - contactless pickup; 3 - guide table; 4 - collar plate;
 5 - frame; 6 - hollow rod; 7 - mandrel; 8 - collar plate; 9 - tube-moving
 mechanism; 10 - tube-feed table; 11 - mechanism for feeding and removing of
 tubes; 12 - contactless pickup - 2; 13 - contactless pickup - 3; 14 - automatic
 controller

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ACC NR: AP6004646

2
and operating trials of this machine produced positive results with respect to tubes of various diameters and of a length of up to 7 m. The machine can deposit a 1-mm thick coating on 100 tubes of 42-mm diameter per hour or on 48 tubes of 102-mm diameter per hour. The thickness of the coating can be adjusted from 0.5 to 2 mm. This method of tube-coating can be employed as a protection against corrosion and as a means of prolonging the service life of tubes, provided that the coating material is applied in the form of a paste. Currently the Dnepropetrovsk Institute of Chemical Technology, in collaboration with the Dneprodzerzhinsk Nitrogenous Fertilizers Plant, is performing operating trials of the thus coated pipe in pipelines for the transport of aggressive fluids; this should prove to be a conclusive test. Moreover, it has been established that eventually the machine can be adjusted to coat pipe segments reaching 12 m in length. Orig. art. has: 2 figures.

SUB CODE: 00, 11, 13/ SUBM DATE: none/ ORIG REF: 000/ OTH REF: 000

Card 4/4

ACC NR: AT7004508

(N)

SOURCE CODE: UR/2531/66/000/189/0094/0100

AUTHOR: Fomichev, I. A.; Kurpakov, Yu. A.; Psalomshchikov, V. F.

ORG: None

TITLE: Small thermoprobe for investigating the lower 500-meter layer in the atmosphere

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy, no. 189, 1966. Issledovaniye pogranichnogo sloya atmosfery s pomoshch'yu vertoletov i planerov (Investigating the boundary layer of the atmosphere with the aid of helicopters and gliders), 94-100

TOPIC TAGS: temperature instrument, meteorology, measuring instrument, meteorologic instrument, atmospheric probe, lower atmosphere, atmospheric temperature, radiosonde, helicopter, meteorologic balloon

ABSTRACT: The circuitry and principles of operation of a small thermoprobe designed for investigating the temperature regime in the lower 500-meter layer in the atmosphere are reviewed. The thermoprobe is a radio telemetering system consisting of a sensor-thermistor, a radio transmitting device, and a complex of ground receiving and recording equipment. The radio transmitter uses the RKZ-1 radiosonde circuitry, but certain changes have been incorporated to compensate for the absence of a

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ACC NR: AT7004508

pressure switch in the thermoprobe. The KMT-1 thermistor has twice the temperature coefficient of resistivity of the MMT-1 thermistor used in the RKZ-1 radiosonde, and a much lower coefficient of inertia, so that the coefficient of inertia of the temperature-sensitive element is less than 5 seconds. The temperature coefficient of resistivity of the thermistors in the KMT-1 varies between 4.5 and 6% per 1°C, corresponding to an average change in frequency from the measuring oscillator of an order of magnitude of 50 cycles/degree. The measuring oscillator's frequency modulation at 0°C is 1,500 cycles, making the lower limit measured by the thermoprobe -30°C, while there is no upper limit. The unit's radiated frequency is 150 megacycles. Power supply is provided by a set of batteries consisting of one GB-70 plate battery, two FMTs "Saturn" 1.6 volt filament batteries, which also supply the fan motor, and one KBS-L-0.50 battery for supplying the semiconductor multivibrator. The batteries are good for 20 hours of operation. Lift-off weight of the transmitter section, together with batteries, is about 1,000 grams. Ground reception uses a collapsible whip antenna on the receiving-recording equipment, with reliable reception possible over 1,000 to 1,500 meters. The supply from the 127/220 volt AC network is rectified before being fed to the ground equipment. Tests were made and readings compared with those obtained from the M-J4 aspiration psychrometer and the A-22-1U radiosonde at the 2 meter level, showing the mean square error in readings for the thermoprobe to be within 0.29° of those obtained with the M-J4, and 0.62° of those obtained with the A-22-1U. Improvements can reduce the error in

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ACC NR: AT7004508

measuring temperature with the thermoprobe to $\pm 0.1^\circ$. The conclusions are that the thermoprobe provides temperature measurements accurate to $\pm 0.2^\circ$; that such measurements can be made to within $\pm 0.1^\circ$ by utilization of available circuit parameters; that the sounding ceiling can be increased to 20 to 25 kilometers by the use of a super-heterodyne receiver; and that helicopters, gliders, tethered aerostats and balloons can be used for the systematic probing of the lower layer of the atmosphere. Orig. art. has: 2 formulas and 3 figures. [W.A. - No 4]

SUB CODE: 04/SUBM DATE: None/ SOV REF: 005

Card 3/3

FOMICHEV, I.A., doktor tekhn.nauk; KONONENKO, A.P.

Using polymer materials in the construction of ore mining
machinery. Mat. i gornorud. prom. no. 2:43-47 Mr-Ap '64.
(MIRA 17:9)

FOMICHEV, Ivan Fedorovich; SAKEYEV, Vladimir Sergeyevich; ZAMYSHLYAYEVA, I.M.,
red.izd-va; SALAZKOV, N.P., tekhn. red.

[Safety measures in local industry; reference book] Okhrana truda v
mestnoi promyshlennosti; spravochnik. Sost.I.F.Fomichev i V.S.Sakeev.
Moskva, Izd-vo M-va kommun.khoz.RSFSR, 1960. 526 p. (MIRA 14:12)
(INDUSTRIAL SAFETY)

PERSON, Solomon Veniaminovich [deceased]; LEBEDEV-KARMANOV, Andrey Ivanovich;
KHATSKELEVICH, Viktor Abramovich; ~~FOMICHEV, I. N.~~ redaktor;
DIKAREVA, A.I., redaktor; KORUZEV, N.N., tekhnicheskiiy redaktor.

[Theory and design of amplitude and modulation generator tubes;
experience in developing A.I.Berg's method] Teoriia i raschet
amplitudno-modulirovannykh lampovykh generatorov; opyt razvitiia
metoda A.I.Berga. Pod red. I.N.Fomicheva. Moskva, Izd-vo "Sovetskoe
radio," 1955. 507 p. [Microfilm] (MLRA 9:1)
(Electron tubes)

ZHDANOV, I.M.; ROMANOVSKIY, V.B.; DOLUKHANOV, M.P.; ZLOTNIKOV, S.A.;
KONDRAT'YEV, A.G.; ODNOL'KO, V.V.; ROGITSKIY, V.Yu.; POMICHEV,
I.N.

Professor P.V. Shmakov. Elektrichestvo no.1:94 Ja '56. (MLRA 9:3)
(Shmakov, Pavel Vasil'evich, 1885-)

ZETLENOK, Grigoriy A., DOLUKHANOV, M. P., MURAVYEV, K. Kh., PALSHEKOV, V. V.,
FOMICHEV, I. N. and FRADIN, A. Z.

"Research Work of the Leningrad Electrical Engineering Institute of
Communications on the Propagation of Radio Waves by Means of Tropospheric Scatter
on the Experimental Leningrad-Petrozavodsk Line."

paper presented at the Conference on Propagation of Very Short Waves in Prague
(Liblice) 10-12 November 1958.

KHATSKELEVICH, Viktor Abramovich; FOMICHEV, I.N., otv. red.; LIBERZON,
L.G., red.; ROMANOVA, S.F., tekhn. red.

[Calculation of the performance of new generator triodes] Ras-
chet rezhimov novykh generatornykh triodov. Moskva, Gos. izd-
vo lit-ry po voprosam svyazi i radio, 1961. 48 p.

(MIRA 15:2)

(Oscillators, Electron-tube)
(Triodes)

DUNAYEV, Petr Aleksandrovich; ZIMIN, A.I., prof., retsenezent; PODREZ,
S.A., inzh.; MEYLAKH, G.I., inzh., red.; FOMICHEV, I.V., inzh.,
red.; DUGINA, N.A., tekhn.red.

[Pneumatic hammers] Pnevmaticheskie moloty. Moskva, Gos.
nauchno-tekhn.izd-vo mashinostroitel'-ry, 1959. 190 p.
(MIRA 12:7)

(Pneumatic machinery) (Hammers)

CHELYSHEV, Yu.A.; FOMICHEV, K.I.

Automatic machine for stamping valve seats. Avt.prom. 28 no.4:
35 Ap '62. (MIRA 15:4)

1. Moskovskiy avtozavod imeni Likhacheva.
(Forging machinery)

BANKETOV, A.K.; VERIGO, K.N.; MAKRUISHINA, Ye.A.; SEDOVA, G.A.;
TOMOVA, I.S.; FOMICHEV, L.Kh., red.; TROITSKIY, A.V.,
red.; VELLER, L.Ye., red.; LOGINOVA, Ye.I., tekhn.red.

[Copper industries in capitalist countries] Mednaia pro-
myshlennost' kapitalisticheskikh stran. Moskva, Pt.1.
[Mining and treatment of copper ores] Dobycha i obogashchenie
mednykh rud. 1962. 171 p. (MIRA 16:4)

1. Moscow. Tsentral'nyy institut informatsii tsvetnoy metal-
lurgii.

(Copper mines and mining) (Ore dressing)

GUTOROV, V.I., inzh.; FOMICHEV, M.G., inzh.

KSP-1,0 self-propelled front-mounted mower. Trakt.i sel'-
khoz mash. no.1:35-36 Ja '60. (MIRA 13:4)

1. GKBS Lyuberetskogo zavoda sel'skokhozyaystvennogo mashino-
stroyeniya im. Ukhtomskogo.
(Mowing machines)

FOMICHEV, M., inzh.; TYUKHOMENEV, Yu., inzh.; FREGER, Yu., inzh.

Electric temperature regulator for grain dryers. Muk.-elev.prom.
26 no.1:16-18 Ja '60. (MIRA 13:6)

1. Tsentral'noye konstruktorskoye byuro Elektroprivod Vsesoyuznogo
nauchno-issledovatel'skogo instituta elektromekhaniki (for Fomichev,
Tyukhmenov). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'sko-
khozyaystvennogo mashinostroyeniya (for Freger).
(Grain--Drying) (Temperature regulators)

FOMICHEV, M.; NOVIKOV, A.

Temperature regulators for grain dryers. Pozh.delo 9 no.5:13-14
My '63. (MIRA 16:5)

1. Vedushchiy konstruktor Tsentral'nogo konstruktorskogo byuro
Elektroprivod Vsesoyuznogo nauchno-issledovatel'skogo instituta
elektromekhaniki (for Fomichev). 2. Nachal'nik inspekttsii
Gosudarstvennogo pozhnarnogo nadzora Proletarskogo rayona Moskvyy
(for Novikov).

(Temperature regulators) (Grain—Drying)

FOMICHEV, Mikhail Ivanovich; IVANOV, P.P., redaktor; BOGOLYUBOVA, R.N.,
tekhnicheskiy redaktor

[Greater production from every square meter of working area] Bol'she
produktov s kazhdogo kvadratnogo metra proizvodstvennoi ploschadi.
[Ivanovo] Ivanovskoe kn-zo, 1955. 59 p. (MLA 9:12)
(Efficiency, Industrial)

FOMICHEV, M.I.,

We are increasing production yield per unit of floor space. Tekst.
prom.15 no.10:50-52 0'55. (MLRA 8:12)

1. Direktor Ivanovskoy fabriki imeni Dzerzhinskogo
(Ivanovo--Textile industry)

CA FOMICHEV, M. M.

14

The sulfur springs at Chokrak. M. M.—Fomichev.
Trudy Lab. Geol. Problem im. F. P. Savitskogo,
Akad. Nauk S.S.S.R. 1, 221-232 (1918) —This popular

Russian spa is in the northeastern part of the Kerch peninsula, 1.5 km. from the shore of the Sea of Azov. Its medicinal value is ascribed to its high content of H_2S (0.3612 and 0.4227 g. per l.) and to the mud taken from the Chokrakskii Wake. The analyses of the two types of mineral waters of the region show the presence of an unusual amt. of B (0.1791 and 0.0730 g. HBO_3 per l.), but this is not mentioned in the text. All the springs are free-flowing with an output of 10,000-200,000 l. per day, which can be doubled by pumping. The chem. compn. of the various waters of the region is discussed in terms of Kurlov's formula. There is a geol. description of the region and suggestions for improving the well-casings, some of which are of wood because of the corrosive action on steel pipes caused by the CO_2 and H_2S in the water. V. H. Gottschalk

YOMICHEV, M.M.

The mineral waters of Katyrsh-sarai in Crimea. Trudy Lab. Gidrogeol.
Problem 3, 287-300 '48. (MIRA 3:2)
(CA 47 no.18:9530 '53)

FOMICHEV, M.M.

FOMICHEV, M.M., kand.geologo-mineralogicheskikh nauk

New thermal mineral waters in the Sukhumi area. Vop.kur., fizioter.
i lech. fiz.kul't. 22 no.5:94-95 S-O '57. (MIRA 11:2)
(SUKHUMI--MINERAL WATERS)

FOMICHEV, M.M.

Mineral waters in North Korea. Bnl.MOIP.Otd.geol. 35 no.2:125-
131 M-Ap '60. (MIRA 14:4)
(Korea, North—Mineral waters)

SOLODENIKOV, V.N., kand.tekhn.nauk; FOMICHEV, M.M., inzh.

Farm electrification and tasks of the agricultural machinery industry.

Trakt. i sel'khoz mash. 30 no.6:19-21 Je '60.

(MIRA 13:11)

(Electricity in agriculture)

(Agricultural machinery)

FOMICHEV, M.M., inzh.; TYUKHMENEV, Yu.S., inzh.; POPOV, O.M., inzh.

An automatic noncontact ATR-1 temperature regulator for grain
driers. Vest. elektroprom. 33 no.9:24-26 S '62. (MIRA 15:10)
(Grain—Drying) (Temperature regulators)

USSR/Engineering - Hydraulics, Flow Nov 51
Analysis

"Pulsation of Dynamic Pressure at the Boundary
of Flow Divergence," M. S. Fomichev, Cand Tech
Sci

"Gidrotekh Stroi" No 11, pp 38-42

Analysis of exptl data, obtained in 1940 by
Selsmol and Power Eng Institutes, Acad Sci USSR,
permitted conclusion that energy lost by flow at
sudden widening turns into work of elastic forces
and reveals itself in form of dynamic pressure
pulsation, which causes vibration of structures,

200791

USSR/Engineering - Hydraulics, Flow Nov 51
Analysis (Contd)

secur or disintegration of flow bed and fluctuation of free surface. Formula was developed for amplitude of pulsation.

200791

FOMICHEV, M.S.

FOMICHEV, M.S.

USSR/Engineering - Hydraulics, Hydrodynamics Apr 52

"Pulsation of Hydrodynamic Pressure at the Boundary of an Open Turbulent Flow," M. S. Fomichev, Cand Tech Sci

"Gidrotekh Stroi" No 4, pp 32-35

Emphasizes importance of knowledge of the laws of formation, development and distribution of pulsating pressure at the boundary of flow for correct evaluation of forces causing vibration of dams, buildings of hydroelec stations, head pipelines, etc. By analysis of exptl data, establishes factors having effect on pulsation of dynamic pressure and develops formula for pulsation amplitude. Calculates energy of pulsation using Bernoulli's eq.

219T27

1. FOMICHEV, M. S.
2. USSR (600)
4. Hydrodynamics
7. Pusation of dynamic pressure at the edge of the current in the water tube of a lock. Gidr.stroi. 21 no. 10 1952
9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

1432. Fomichov, M. S., Structure of a flow behind a flat plate in a viscous fluid (In Russian), *Izv. Akad. Nauk SSSR Mekh. Zhid. Gaz* no. 8, 1157-1165, Aug. 1953.

The fluid is water, 54 cm deep, flowing in a turbulent manner through an open glass channel 60 cm wide at a Reynolds number of 118,000. Spherical tracers, 1-1.5 mm in diam, made of a mixture of chlorobenzene and vaseline so as to match the density

of water, are introduced far upstream, illuminated by a narrow light beam through the flow and photographed with 0.11-sec exposures. Single exposures of the whole flow field of the undisturbed flow and of flows with flat plates 2.25, 4.5, and 9.5 cm high (spanning the channel perpendicularly to the flow) are light (spanning the channel perpendicularly to the flow) are analyzed to give local instantaneous horizontal and vertical velocity components, u and v , in Fig. 4, and their instantaneous product uv in Fig. 5. For a nondimensionalized measure of local velocity the author takes the ratio of $(uv)^{1/2}$ to the spatial mean of it in the same quantity in the undisturbed flow (Fig. 6). The only general statement is that the distance L needed for the local velocity to decay to the free-stream value is approximately 35 to 40 heights of the plate.

There are no time statistics, no instantaneous spatial correlations. The scatter evident from the graphs indicates that the technique would have to be considerably improved to give reliable information even about the large-scale turbulence.

M. V. Mochinov, USA

62

FOMICHEV, M.S.

State of flow and the pulsation of hydrodynamic pressure along its boundaries. Izv.AN SSSR Otd.tekh.nauk no.11:1622-1629 N '53. (MLBA 6:12)

1. Predstavleno chlen-korrespondentom Akademii nauk SSSR P.Ya.Kochinoy.
(Hydrodynamics)

FOMICHEV, M. S.

USSR/Engineering

FD 275

Card 1/1

Author : Fomichev, M. S.

Title : Hydrodynamic pressure pulsation and kinematic structure of flow in the tail water of a spillway dam

Periodical : Iz. Ak. Nauk SSSR, OTN, 1, 138-158, Jan 1954

Abstract : Discusses and presents data on an experimental investigation of the kinematic structure of the current in the tail water of a spillway dam model and distribution of hydrodynamic pressure pulsation on the spillway crest, dam apron, and the stilling pool. Studies made of following: stilling pool with one sill; stilling pool with one sill and stream-separating piers; stilling pool with stream-directing piers and sill; stilling pool with stream-directing, energy-dissipating piers. Diagrams, illustrations, graphs.

Submitted : November 21, 1953. Presented by P. Ya. Kochina, Corresponding Member, Academy of Sciences of the U.S.S.R.

Atomic energy in technology. M. S. Komichev. *Prirada*
45, No. 3, 11-22 (1959). -A review of the uses of at. energy
in technological fields, in metallurgy and agriculture. The
various uses of tagged atoms are discussed. J. R. L.

1
RML

POMICHEV, M.S. (Moskva).

Investigating the modeling of the pulsations of hydrodynamic pressures. Izv. AN SSSR. Otd. tekhn. nauk no. 11: 116-119 N '56.
(MLRA 10:1)
(Electromechanical analogies) (Hydraulic models)

AUTHOR: Fomichev, M. S. (Moscow)

24-9-28/33

TITLE: On the pulsation of the hydrodynamic pressure at the boundary and inside the flow. (O pul'satsii gidrodinamicheskogo davleniya na granitse i vnutri potoka)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.9, pp. 151-153 (USSR)

ABSTRACT: New data are evaluated relating to the distribution of pulsations of the hydrodynamic pressure, which were obtained in 1955, in tests carried out by the author and N. S. Zhelezni and G. V. Nazarov with Professor M.M.Grishin as the scientific consultant; the experiments were carried out under natural conditions in the tail race behind an overflow weir with a sharp rib fitted in the outflow canal of the Ust'-Tatishchev hydroelectric power station in the Moscow region. The width of the outflow canal was 3 m, the depth 2 m, length 10 m. The walls consisted of timber crib-work filled with soil, adjacent to the bank and separating the power station building from the dam. The pulsations of the hydraulic pressure inside the flow and at the flow boundary were measured by means of photo-electronic pressure probes, schematic drawings of which are shown in Fig.1, p.152. In the first case the probes

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STYRIKOVICH, M.A., otv.red.; KHOLODOVSKIY, G.Ye., red.; FOMICHEV, M.S.,
red.; SINEL'NIKOVA, L.N., red.izd-va; BORUNOV, N.I., tekhn.red.

[Heat engineering and hydrodynamics; papers of the All-Union Scientific and Technical Conference on the Use of Radioactive and Stable Isotopes and Radiation in Agriculture and Science] Trudy Vsesoiusnoi nauchno-tekhnicheskoi konferentsii po primeneniю radioaktivnykh i stabil'nykh izotopov i izlucheniю v narodnom khoziaistve i nauke: Teplotekhnika i gidrodinamika. Vol.4. Moskva, Gos.nauchno-tekhn.izd-vo neft. i gorno-toplivnoi lit-ry. 1958. 88 p. (MIRA 12:3)

1. Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniю radioaktivnykh i stabil'nykh izotopov i izlucheniю v narodnom khoziaistve i nauke, Moscow, 1957. 2. Energeticheskii institut AN SSSR (for Styrikovich).

(Radioactive substances--Industrial applications) (Hydrodynamics)

AUTHOR: Fomichev, M. S. (Moscow)

SOV/24-58-8-28/37

TITLE: Dynamic Similarity of Flows with Submerged Hydraulic Jumps (Podobiye gidrodinamicheskikh kharakteristik potoka zatoplenogo pryzhka)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 8, pp 143-145 (USSR)

ABSTRACT: During 1953 and 1954 investigations were carried out to discover the nature of fluctuations in dynamic pressure and kinematic structure as well as to determine kinematic and dynamic similarity of the flow in the region of the junction of the water levels in an overspill over a dam of some practical shape under the conditions of a submerged hydraulic jump. The models of dams were made of perspex in three sizes: 1:1, 1:2 and 1:5 and placed in separate water canals which also were made of perspex and glass. The size 1:1 represented the 1:100 scale of the full size dam erected on the river Volga in Kuybyshev. Fluctuations in dynamic pressure were measured by means of electric capacitors. The internal structure of the streams was made visible by selecting narrow strips of water (by means of screens) and illuminating them through

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Dynamic Similarity of Flows with Submerged Hydraulic Jumps SOV/24-58-8-28/37

the glass bottom by a moving source of light and introducing into the flow small drops (1 to 2 mm dia.) of the oily mixture of chloro-benzol, vaseline and zinc oxide, the specific weight of which is the same as that of water at the given temperature. The strips were of the following widths: 5, 2.5 and 1 cm for 1:1, 1:2 and 1:5 sizes respectively. The paths of these oily drops were determined by means of a cine-camera. To secure a linear scale of their motion a mesh (in cm) was photographed together with the canals before the experiments and then removed as the movement of the drops was traced. The camera was stationary all the time. The flow data for the model size 1:1 were as follows: flow - 17 litre/sec, depth of the headwater - 26 cm, depth of the tail water - 17 cm, overspill - 9 cm, mean velocity away from the crest - 17 cm/sec. For other models the corresponding characteristics of the flow were deduced from the above by means of known relations of similarity. The time-mean values of amplitudes, pressure fluctuation and the period of fluctuations were determined from obtained graphs taking a sufficiently reasonable time

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SOV/24-58-8-28/37

Dynamic Similarity of Flows with Submerged Hydraulic Jumps

interval of 15 to 20 seconds. Irrespectively of the variation in scale of the models the following modes of flow can be detected in each case:

- 1) streamline, smoothly varying motion in the transitory stream, gradually extending towards the full depth of the tail water as the distance from the contracted section increases;
- 2) translatory-rotational motion between the transitory stream and the reversed flow;
- 3) reversed (return) flow towards the overspill;
- 4) disorderly turbulent motion in the appreciable distance from the overspill; this type of motion springs up as a result of breaking up of the large vortices of the translatory-rotational motion into smaller vortices superimposed onto the main motion of the stream. With increasing distance from the dam the intensity of vorticity diminishes and in the case of a smooth surface of the bed the flow transforms into the 5-th mode: the normal turbulent flow. In the headwater, in front of the crest, the flow is streamline, gradually narrowing and speeding up with practically no fluctuation of pressure.

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SOV/24-58-8-28/37

Dynamic Similarity of Flows with Submerged Hydraulic Jumps

In the transitory part over the crest there is no pressure fluctuation either, this being due to the streamlined shape of the head of the crest; but in the case of an incorrect form of the head vortices may form and fluctuation of pressure may occur on the crest. Referring to Fig.1 the regions where the above modes of flow appear are as follows: From the crest up to the junction of the overspill with the tail water (points 1, 2, 3) fluctuations of the dynamic pressure begin to appear and increase with velocity of the flow up to 5 to 6% of the dynamic head (when the crest is incorrectly shaped this fluctuation may be appreciable). From the above junction up to the end of the overspill stream large vortices are formed (resulting in translatory-rotational motion) and frequency of fluctuations increases. Region from point 6 to point 10 is defined by three very stable forms of motion: transitory stream, translatory-rotational motion and rotational flow. The mean velocity in this region changes its sign and pressure fluctuation is the strongest. In the region between the points 10 and 16 the general characteristics of the flow are similar to

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Dynamic Similarity of Flows with Submerged Hydraulic Jumps

those above; however, the wake expands over the whole depth of the tail water, fluctuations gradually diminish in intensity and the flow eventually transforms into disorderly turbulent flow. Between the points 16 and 21 the flow is that of a disorderly turbulence. Surface waves are formed here as well. Fluctuations become very weak and have a low frequency. Microfluctuations do not reach the bottom, being damped out inside the liquid. Further downstream the flow is of the usual turbulent character. Any fluctuations are due to surface waves. Figs. 2 and 3 show the relations expressed by the formulae on p.145 for all three models and it can be seen that the experimental data for each one of them are nearly coincident, hence the velocity profiles are kinematically similar. The meaning of symbols is as follows:

- U and V - the horizontal and vertical components of the velocity of flow respectively,
- H - depth of the tail water,
- V_{cns} - mean velocity in the constricted cross section,
- h - vertical distance from the bottom to a given station,

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Dynamic Similarity of Flows with Submerged Hydraulic Jumps

- $u_{tr} = U_{TR}$ - maximum horizontal speed in the transitory region,
 U_{rev} - ditto in the reversed motion,
 L - distance from the top of the crest to the given station,
 C - height of the overspill,
 H' - stroke or the double amplitude of the fluctuations,
 N - frequency,
 Z - fall (i.e. the difference in water levels).

From Fig.3 it is seen that the amplitudes and the frequencies of fluctuations are similar for all three models, hence the flows are dynamically similar. There are three figures.

SUBMITTED: June 15, 1956

1. Fluid flow--Analysis 2. Inland waterways--Simulation 3. Dams
--Model test results 4. Motion picture photography--Applications

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98-58-6-11/21

Form 10-4 v. 11/5

AUTHOR: Fomichev, M.S., Candidate of Technical Sciences

TITLE: The Structure of the Current in the Lower Head Behind the Plane Water Gate (Struktura potoka v nizhnem b'yefe za ploskim zatvorom)

PERIODICAL: Gidrotekhnicheskoye Stroitel'stvo, 1958,^{2.7} Nr 6, pp 37-41 (USSR)

ABSTRACT: Plane water gates, widely used in hydro-engineering, are exposed to strong vibration, and even destruction, by pulsating hydrodynamic pressure developing in the current. The author studied this phenomenon in a special hydrodynamic glass trough. As a result of a 2 years survey, he devised formulae by which the most dangerous part of the current, where the vibration occurs, could be calculated. The research also showed that whirlpools formed by the transit current and the reflux were the principal cause of this formation of pulsating pressure. There are 4 figures, 1 table, and 5 Soviet references.

AVAILABLE: Library of Congress

Card 1/1 1. Water gates-Vibration-Mathematical analysis 2. Vibration-Mathematical analysis

AUTHOR: Pomichev, M. S.

SOV/57-58-8-31/37

TITLE: Investigation of the Hydrodynamics of a Flooded Jump Flow
(Issledovaniye gidrodinamiki potoka zatoplennoy pryzhki)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1958, Nr 8, pp 1813 - 1822 (USSR)

ABSTRACT: This is a presentation of new data on the kinematic structure of an actual flow and on the distribution of the pulsations of the hydrodynamical pressure on the boundaries of the flow. Analogies in the rules governing the kinematic and the dynamic characteristics of a flow are clarified, the flow running over a weir under identical conditions to those holding in the two-dimensional problem of a flooded hydraulic jump flow. Three models at a scale of 1:1, 1:2 or 1:5, respectively, were investigated for information bearing on this problem. The flow lines were made visible by little grains insoluble in water, which were added to the flow. A KC-50 film camera was used to record the trajectories of the moving grains. The direction of motion and the velocity of the grains was known. The velocity field was reproduced for all three models. In all cases 5 stable types of motion were observed

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Investigation of the Hydrodynamics of a Flooded Jump
Flow

SOV/57-58-2-31/37

which were clearly pronounced and very similar to each other:
1) A fanlike motion which gradually changed and transformed into a transit jet. 2) A progressive rotating motion. This covers a large proportion of the tail water section. 3) Back-flow to the weir. 4) A rotating motion between the weir and the over-flowing stream. 5) A turbulent flow at a great distance from the weir, and an excited turbulent flow at that, which at increasing distance from the weir and if the ground is smooth transforms into the 6th case, the ordinary turbulent flow. The curves plotted show that the maximum dynamic forces in the tail water are concentrated after a weir with a sharp sill. That means that the section where the ground is most liable to destruction by the flow is within $L = 6C$, C is the height of the weir and L the distance from the upper edge of the weir. The section most in danger is between $L = 0.5 C$ to $L = 2.5 C$. There are 7 figures and 3 references, 3 of which are Soviet.

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Investigation of the Hydrodynamics of a Flooded Jump
Flow

SOV/57-58-8-31/37

ASSOCIATION: Sektsiya po nauchnoy razrabotke problem vodnogo khozyaystva
AN SSSR, Moskva (Section for Scientific Treatment of Problems
of Water Economy, AS USSR Moscow)

SUBMITTED: August 1, 1957

Card 3/3

21(5) 21(8)

AUTHORS:

Samarin, A.M., Corresponding Member, AS USSR SOV/30-58-11-4/48
Fomichev, M.S., Candidate of Technical Sciences

TITLE:

Radioactive Isotopes and Nuclear Radiation in Technical Engineering
(Radioaktivnyye izotopy i yadernyye izlucheniya v tekhnike)

PERIODICAL:

Vestnik Akademii nauk SSSR, 1958, -Nr 11, pp 22-27 (USSR)

ABSTRACT:

The 2nd international conference for the use of atomic energy for peaceful purposes took place in Geneva in September. It demonstrated the universal use of radioactive isotopes and nuclear radiation in various branches of science and industry. The representatives of the USSR reported on results of researches on the physical properties of thulium-170, europium-155, and cerium-144 as sources of radiation. Experiments were made to employ them for quality control of welded, soldered, cast, and other thin-walled products of alloys based on iron, titanium, aluminum, and magnesium. In Czechoslovakia controls of welding seams of steam turbines, casts of iron, steel, and bronze are carried out by means of the isotopes cobalt-60, iridium-192, cesium-137, thulium-170. In order to investigate the effect of lubricant admixtures tests were carried out in the USSR with admixtures marked by radioactive isotopes C^{14} , P^{32} ,

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Radioactive Isotopes and Nuclear Radiation in Technical Engineering

SOV/30-58-11-4/48

S³⁵. Furthermore the following fields of application of radioactive isotopes and nuclear radiation are mentioned: in the mineral oil industry for the determination of the technical state of drill holes etc.; in the field of mining and utilization of mineral resources; in developing new ways for ~~advancing~~ metallurgical industry; technological researches; examination of the hydrodynamic state of liquid phases in the tank of a Martin furnace; examination of diffusion in metals and alloys; examination of friction and wear in mechanical engineering; application of nuclear radiations in measuring technique and machine tool construction. As far as machine parts, mechanisms, and other metal products are concerned, gamma defectscopy ranks first among the control methods by means of radioactive radiation. For this control besides of the isotopes cobalt-60, cesium-137, europium-152 and 154, thulium-170, and others, gamma radiation of betatrons is now employed. Radioactive isotopes and radiation are used for the investigation of processes in steam power plants. These methods of examination are also employed in hydro-technology, soil mechanics and engineering geology.

Card 2/2

AUTHOR: Fomichev, M.S., Candidate of Technical Sciences 26-58-2-19/48

TITLE: Study of Water Flow to Prevent Damage to Dams (Izucheniye vodnogo potoka dlya bor'by s razrusheniyami plotin)

PERIODICAL: Priroda, 1958,⁴⁷ Nr 2, pp 84-87 (USSR)

ABSTRACT: The author deals with the erosive effect that water can have on the bed and sides of dams. For his experiments, he used a glass tank and introduced a mixture of chlorine-benzole, vaseline and zinc white into the water to act as indicator particles for the flow trajectories. A movie camera was used to record the flow and its velocity. Membrane transmitters were also used to record the pulsationary hydrodynamic pressure exerted by the flow on the various portions of the bottom or the walls of the installation. The membranes transformed mechanical impulses into electrical which were recorded on a loop oscillograph. In the absence of any dampers it was shown that the flow is particularly intense and therefore erosive along the bed of the dam just beyond the spillway. When simple aprons and blocks are installed the speed of the flow is decreased, but great turbulence and pulsationary pressure is created. The author has tried out a system of curvilinear streamlined aprons to be installed directly beyond the dam's spillway. These

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Study of Water Flow to Prevent Damage to Dams

26-58-2-19/48

aprons split the flow into separate streams which, by colliding with each other, lose much of the flow energy and decrease the hydrodynamic pressure by several times. This movie-photo-electric method of studying the hydrodynamics of water flow has been used on models of dams of the Tsimlyansk and Kuybyshev hydro-centers, the dam of the Dnepr Hydroelectric Plant, the sluices of the canal imeni Moskva, the dam of the Begichev GES on the River Nara, the discharge channel of the Ust'-Tatishchev GES on the River Is'ma, the dam of the Burmakin GES on the Moskva River, etc. There are 3 sets of photos, 2 sets of diagrams and 1 graph.

ASSOCIATION: Institut gornogo dela Akademii nauk SSSR, Moskva
(Institute of Mining of the Academy of Sciences of USSR, Moscow)

Card 2/2

1. Dams--Safety measures 2. Water--Control systems--Applications

14(10)

SOV/98-59-6-10/20

AUTHOR: Fomichev, M.S., Candidate of Technical Sciences

TITLE: The Influence of the Water Level on Tail Race Hydrodynamics

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 6, pp 35-41 (USSR)

ABSTRACT: The author describes an analytical and graphic method of evaluating the influence of the water level of the tail race on kinematic and dynamic features of the stream under conditions of a plane problem with a constant water discharge $Q = 3.3$ liters/second and a variable depth of the tail race in a 14 m long experimental glass trough. The trajectories of the indicator particle motion were recorded by a KC-50 motion picture camera. The indicator added to the flow consisted of a mixture of chlorobenzene, vaseline oil and zinc oxide. The velocity of the particle motion was measured by a "Kiyev" camera. Using camera and motion picture recordings, 5 flow

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SOV/98-59-6-10/20

The Influence of the Water Level on Tail Race Hydrodynamics

velocity diagrams were plotted as shown in Figure 1. The results of the experiment were compared with theoretically established graphs, shown in Figure 4, according to the formula

$$y = ax^n e^{-bx}$$

where

$$x = \frac{1}{C}; \quad y = \frac{H'}{H_{t.r.}}$$

- L - distance from the upper edge of the spillway;
- C - height of spillway;
- $H_{t.r.}$ - depth of water in tail race;
- H' - extent of double pulsation amplitude of hydrodynamic head;
- a, b and n - are factors with variable x, as shown in Table 2, for different water level conditions in the tail race.

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SOV/98-59-6-10/20

The Influence of the Water Level on Tail Race Hydrodynamics

The comparison of results obtained by calculation with those obtained by observation of the behavior of the flow in the trough shows an agreement. According to the author, this indicates a regular connection between the critical depth corresponding to a minimum specific energy and the area of a maximum pulsation amplitude of the hydrodynamic head. The author draws the conclusion from this connection that the specific flow energy minimum corresponds to the hydrodynamic head pulsation maximum in the zone of a driven-off hydraulic surge. The tests and the calculation method are described in detail. There are 4 tables, 3 sets of diagrams and 3 sets of graphs.

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SOV/180-59-6-16/31

AUTHORS: Samarin, A.M., and Fomichev, M.S. (Moscow)

TITLE: Prospects for the Use of Radioactive Isotopes and Nuclear Radiations in Metallurgy and other Technical Sciences

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959, Nr 6, pp 121-126 (USSR)

ABSTRACT: The authors give examples (without references) of recent applications of radioactive techniques in research and industry, including the following. In mining isotopes have been used to test oil wells; in surveying coal deposits the intensity of scattered radiation from a Co^{60} source at a counter which is adjacent but screened from direct radiation was used to detect coal seams. In steelmaking research on slag/metal transfer, the sources of non-metallic inclusions and the fluid dynamics of bath liquids has been carried out with the aid of tracers, practical benefits being obtained. In the field of ironmaking radioactive tracers have been used to study the descent of charge materials in the blast furnace, the consequent redesigns having increased productivity 10-20%;

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Radiations in Metallurgy and other Technical Sciences

a further improvement was obtained from the benefits of being able to follow lining wear. Diffusion and solid-state reaction studies with the aid of tracers have contributed to the attainment of improved metal quality. In ore-dressing the selection of flotation reagents has been assisted by auto-radiographic work on reagent distribution in relation to structure. Radiography has been used in research on flow in glass-tanks. Radioactive materials have found wide use in instruments and measurement techniques, sometimes leading to process automation. This application alone is estimated by the Institut ekonomiki AN SSSR (Institute of Economics, Ac. Sc. USSR) to have given a saving in 1958 of the order of 500 million roubles, the figure for all the applications of radioactive isotopes and nuclear radiations being 1.6-1.8 milliard roubles; later the figure may rise to 4 milliard roubles annually. In addition to these and other examples of present uses, the authors discuss possible future uses and suggest directions for research and applications. Important among these are uses in

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Radiations in Metallurgy and Other Technical Sciences ✓
studies of soil mechanics, filtration and movement of
water underground (with the aid, among others, of
tritium and deuterium).

SUBMITTED: October 24, 1959

Card 3/3

POMICHEV, M.S., kand.tekhn.nauk

Studying hydrodynamic characteristics of streams below broad-crested
weirs. Gidr. i stroi. 30 no.5:44-46 My '60. (MIRA 14:5)
(Hydraulics)

S/024/60/000/02/025/031
E194/E155

AUTHOR: Fomichev, M.S. (Moscow)

TITLE: Measurement of Pulsations of Hydrodynamic Pressure of a Two-phase Flow

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1960, Nr 2, pp 192-194 (USSR)

ABSTRACT: This article describes a measuring instrument for recording pulsation of hydrodynamic pressure of a two-phase flow and for automatically controlling mixtures in pipes. \ It was developed and tested by M.S. Fomichev, V.N. Azniyev, and N.S. Zheleznyy. An electrical capacitative transducer is installed flush with the pipe wall or with the bottom of a channel. It is illustrated diagrammatically in Fig 1 and is described. Fluid pressure bends a bronze diaphragm, so producing a change in the electrical signals. The signals are applied to an amplifier whose schematic circuit diagram is given in Fig 2. The operation of the equipment is explained. Experimental data obtained with the instrument for the amplitude and frequency of pulsation of hydrodynamic pressure in a channel are tabulated. Typical oscillograms

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1/2

GOL'DIN, M.L., kand.tekhn.nauk; POMICHEV, M.S., kand.tekhn.nauk

Using gamma rays for density measurements of a two component mixture
in hydraulic coal mining. Ugol' 35 no.8:41-43 Ag '60. (MIRA 13:9)
(Hydraulic mining) (Gamma rays--Industrial applications)
(Densitometers)

FOMICHEV, M. S., Dr. Tech. Sci. (diss) "Kinematic and Dynamic Descriptions of Water Flows in Hydraulic Engineering Equipment," Moscow, 1961, 38 pp (Moscow Civil Engr. Inst.) 220 copies (KL Supp 12-61, 261).

ACC NR: AP6034278 (N) SOURCE CODE: UR/0281/66/000/005/0135/0142

AUTHOR: Fomichev, M. S. (Moscow)

ORG: none

TITLE: Study of the hydrodynamic and thermal characteristics of a jet confined by the walls of a duct

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no.5, 1966, 135-142

TOPIC TAGS: convective heat transfer, combustion characteristic, flow velocity, jet flow, hydrodynamics

ABSTRACT: An experimental study was made of the flow and heat transfer characteristics of jets in a rectangular duct. The experiments were conducted with a square nozzle, 22 mm wide, discharging into a square duct, 44 mm wide. The average and fluctuating velocities, the static and fluctuating pressures at the wall in the flow core, and the convective heat transfer characteristics were measured as a function of the hydrodynamic jet characteristics. The pulsating velocity and pressure were determined by motion picture photography and flow visualization. The hydrodynamic parameters were measured on a water

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ACC NR: AP6034278

jet, and the heat transfer characteristics with an air jet. Burning jets were also studied. Some of the results are shown in Figs.1,2, and 3.

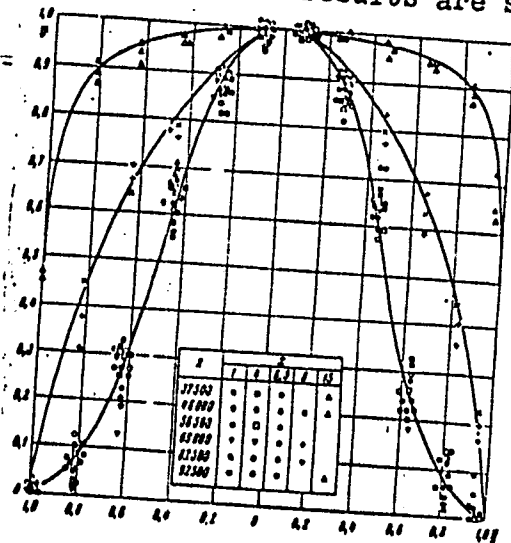


Fig.1. Curves of the variations in the average velocity in the jet cross section taken at various distances from the nozzle outlet.

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ACC NR: AP6034278

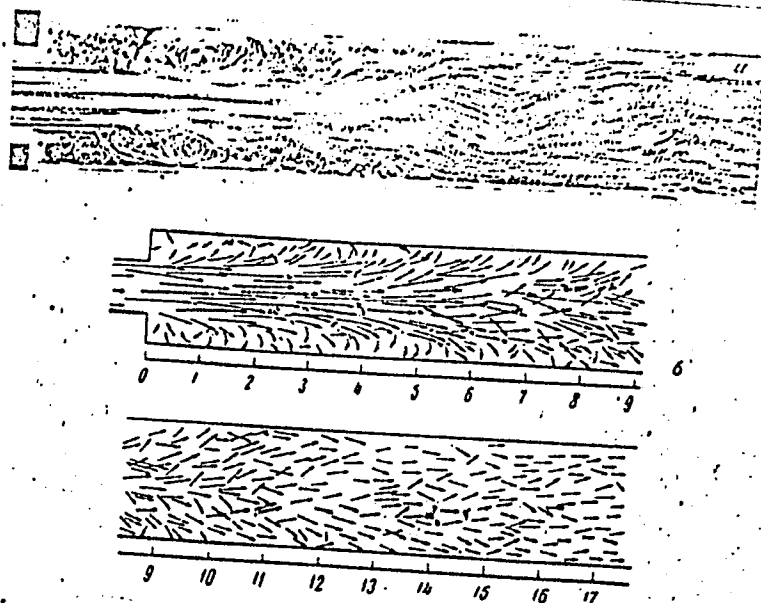


Fig.2. The kinematic structure of the jet confined by a duct
a-photograph of the jet; b-true velocity field constructed from the
motion picture photographs of the visualized flow.

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ACC NR: AP6034278

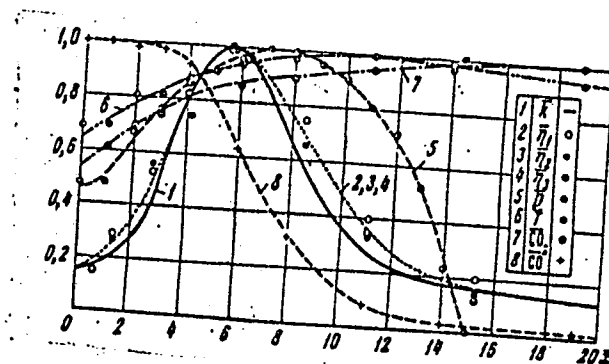


Fig.3. Curves for the relationships between the momentum criterion with allowance for fluctuations in the jet (curve 1) and the combustion characteristics of the burning jets

2,3,4-Recirculation of gases in the combustion chamber; η_1 -without combustion; η_2 -with combustion of cold gas and cold air; η_3 -with combustion gas and air preheated to 700 C; 5-change in the flame diameter; 6-change in temperature; 7-change in combustion products; 8-change in combustible mixture.

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ACC NR:AP6034278

Figure 3 shows that in the main section of the jet ($x=0-15$), the amount of combustion products and the temperature increase. When $x > 15$, discrete vortexes are split into small vortexes, the intensity of combustion decreases, and heat removal from the chamber exceeds the heat generation. Orig. art. has: 7 figures and 12 formulas.

SUB CODE: 20/ SUBM DATE: 08May66/ ORIG REF: 007/ OTH REF: 001 [WA-88]

Card 5/5

FOMICHEV, N.

Kazakh S.S.R. Avt.transp. 35 no.10:16 0 '57.

(MIRA 10:10)

1.Zamestitel' ministra avtomobil'nogo transporta Kazakhskoy
SSR.

(Kazakhstan--Transportation, Automotive)

84-9-14/47

AUTHOR: Fomichev, N., (Olevsk, Zhitomir oblast)
TITLE: School Appliances (Uchebnyye posobiya)
PERIODICAL: Grazhdanskaya Aviatsiya, 1957, Nr 9, p. 12 (USSR)
ABSTRACT: Comrade Denisov and the staff of the Olevsk school of aircraft mechanics of the GVF are commended for their inventiveness: they made a number of school appliances on their own initiative. Comrade Ioffe and technician Smirnov are mentioned by name.
AVAILABLE: Library of Congress
Card: 1/1

FOMICHEV, N.
LAPSHENKOV, B., inzh.-podpolkovnik; FOMICHEV, N., inzh.-podpolkovnik

Advice on the use of quadruple cables. Voen.sviar. 16 no.4:32-35
Ap '58. (MIRA 11:4)

(Telephone cables)

CHAGIN, P.; TAVADZE, Ye.; FOMICHEV, N.; KAZARINA, N.

Material incentives and the quality of production; discussing the practice of the Kalinin textile workers. Sots.trud 7 no.7:113-121
Jl '62. (MIRA 15:8)

1. Nachal'nik otdela truda Pavlovo-Pokrovskoy fabriki (for Chagin). 2. Direktor Tbilisskogo kamvol'no-sukonnogo kombinata "Sovetskaya Gruzija" (for Tayadze). 3. Direktor Shchelkovskogo khlopchatobumazhnogo kombinata (for Fomichev). 4. Nachal'nik otdela truda Shchelkovskogo khlopchatobumazhnogo kombinata (for Kazarina).

(Textile industry---Quality control)
(Bonus system)

6(7)

SOV/178-58-7-16/24

AUTHORS: Lapshenko, B. and Fomichev, N., Engineer-Lieutenant Colonels
TITLE: Field Communication Cables (Polevyie kabeli svyazi)
PERIODICAL: Voennoy svyazist, 1958, Nr 7, pp 38 - 40 (USSR)

ABSTRACT: The authors describe a coil-loaded, four-conductor cable which may be used for long-distance communication with HF condensing equipment P-312 or P-311 up to 60 kc, telephone equipment P-100 or telegraph equipment ST-35. The cable has four conductors with polyethylene insulation, which are enclosed in a polychlorvinyle hose. Each conductor consists of 7x0.49 copper wires. The cable has an aluminum screen and steel braiding underneath the plastic hose. The cable weighs 240 kg/km, its tensile strength is 240 kg. It is shipped in spools containing 250±3 m. Figures 3 and 5 show the couplings used for connecting the cable sections. There are 5 photos and 1 diagram.

Card 1/1

FOMICHEV, N.

Improve the revision of work norms. Sots.trud. 5 no.3:81-85
Mr '60. (MIRA 13:6)
(Electric Industries--Production standards)

FOMICHEV, M.

For a full use of potentials in the building of electric power
stations. Sots. trud 6 no. 2:72-74 F '61. (EPA 1, 1, 1)
(Electric power stations)
(Construction industry--Labor productivity)

FOMICHEV, N.

Quality, state standards and technological information.
Sov. profsoiuzy 18 no.1:14-15 Ja '62. (MIRA 15:2)

1. Instruktor otдела truda i zarabotnoy platy Tsentral'nogo
komiteta profsoyuza rabochikh elektrostantsiy i elektropromyshlenosti.
(Moscow—Electrical industries—Quality control)
(Socialist competition)

FOMICHEV, N.

Production quality and material incentives. Sots.trud 7
no.1:50-52 Ja '62. (MIRA 15:4)
(Moscow--Electric equipment industry--Quality control)
(Moscow--Radio industry--Quality control)
(Socialist competition)